

## Adjustment of Differential Pinions

Torque when turning complete differential approx. 15–20 Nm (150–200 kpcm)

**Note:** New side gears and differential pinions may bind at individual spots when turning differential. The torque at these spots may be up to 35 Nm (350 cmkp).

## Differential

Perm. vertical runout of differential housing on recess for ring gear		0.02	
Perm. lateral runout of differential housing on flange surface for ring gear		0.02	
Thrust washer on side gear	Thickness	Large center housing <sup>1)</sup>	1.3 to 1.7
		Small center housing <sup>1)</sup>	1.0 to 1.7
		Steps	0.1 mm each

## Special Tools

Pulling fixture for tapered roller bearings		187 589 05 33 00
2 Assembly mandrels for side gears		116 589 18 61 00
Plug mandrel for differential gears	Large center housing <sup>1)</sup>	116 589 07 61 00
	Small center housing <sup>1)</sup>	115 589 03 61 00
Assembly mandrel for inner race of tapered roller bearing	Large center housing <sup>1)</sup>	116 589 08 61 00
	Small center housing <sup>1)</sup>	115 589 04 61 00
Clamping fixture for differential	Self-made according to Fig. 1	

1) Refer to installation survey rear axle center housing 35.1–500

# 35.1 Disassembly and Reassembly of Differential

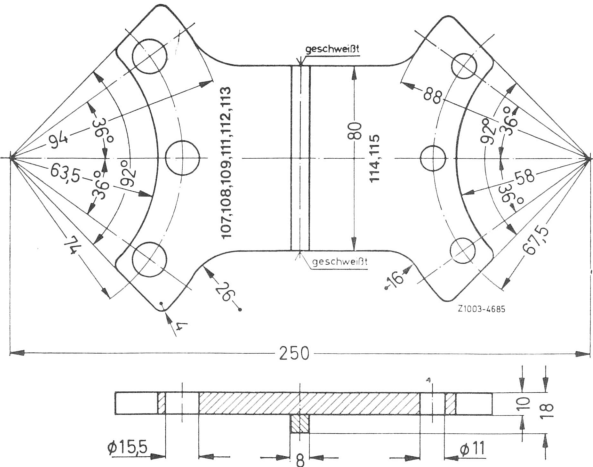


Fig. 1  
Clamping fixture (self-made)

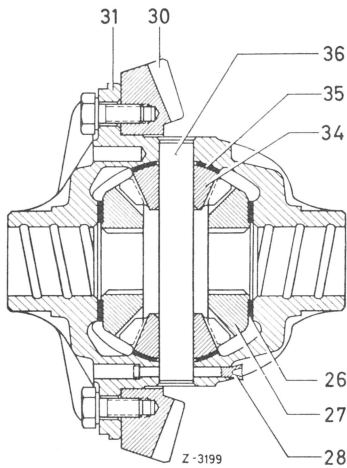


Fig. 2

26 Thrust washer	31 Differential housing
27 Side gear	34 Differential pinion
28 Clamping sleeve	35 Spherical washer
30 Ring gear	36 Differential pin

## Disassembly

- 1 Clamp differential with clamping fixture (Fig. 1) into vise.
- 2 Pull both tapered roller bearings from differential housing with pulling fixture (Fig. 3).
- 3 Knock clamping sleeve for differential pin out of differential housing with matching mandrel.
- 4 Force out differential pin and remove differential pinions, side gears, thrust washers and spherical washers.

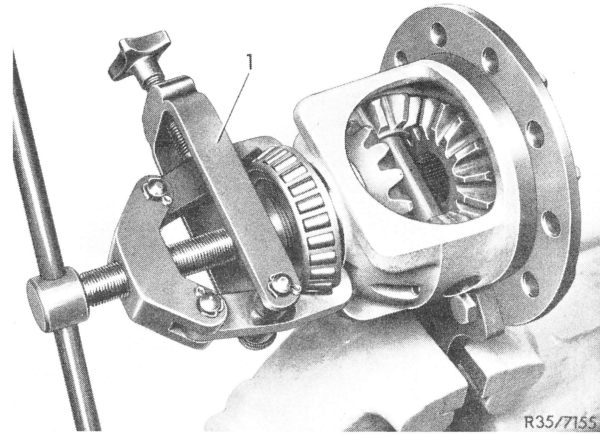


Fig. 3  
1 Pulling fixture

5 Check single parts for reuse. All differential pinions, thrust washers and spherical washers run hot or seized must be replaced on principle.

6 Check bores in differential housing and inspect contact surface for ring gear for vertical and lateral runout.

## Assembly

- 7 Place thrust washers on side gears and insert in differential housing.
- 8 Insert both assembly mandrels into side gears and mount both differential pinions together with spherical washers (Fig. 4).

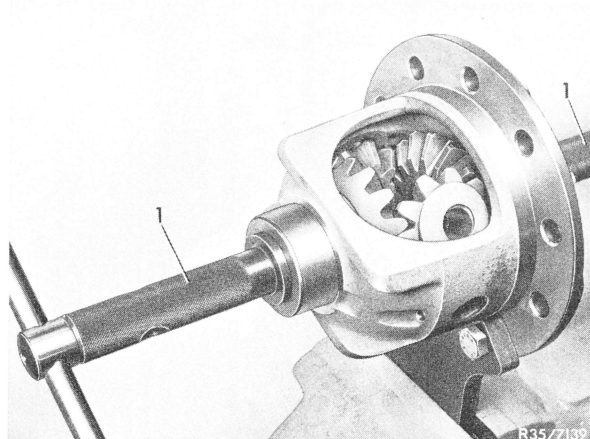


Fig. 4  
1 Assembly mandrel

9 Insert assembly mandrel instead of differential pin into differential housing to locate differential pinions and spherical washers (Fig. 5).

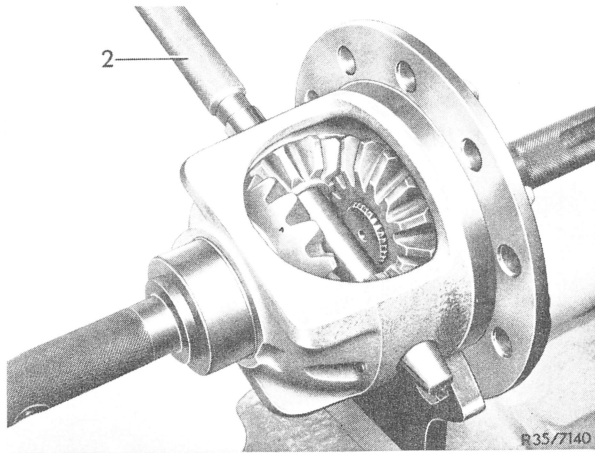


Fig. 5  
2 Plug mandrel

**Note:** Select thrust washers for side gears in such a manner that upon assembly there is no end play but a preload and therefore a given friction torque.

10 Check friction torque (Fig. 6). The friction torque should be approx. 15–20 Nm (150–200 kpcm), on binding spots up to 35 Nm (350 kpcm).

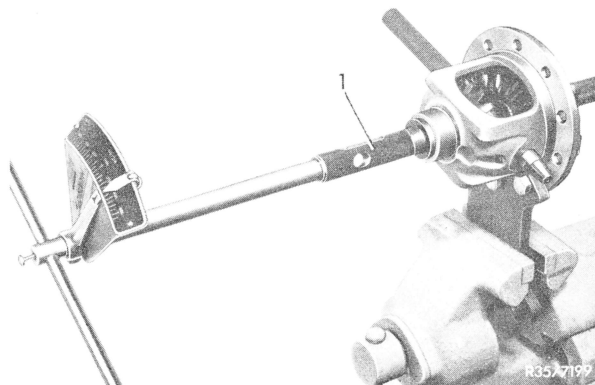


Fig. 6  
1 Assembly mandrel

11 Knock-in compensating pin (Fig. 7).

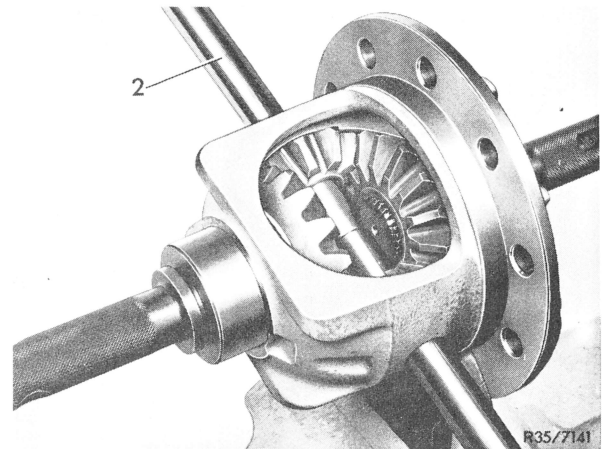


Fig. 7  
2 Plug mandrel

12 Install new clamping sleeve.

13 Press inner races of tapered roller bearings on differential housing with assembly mandrel (Fig. 8).

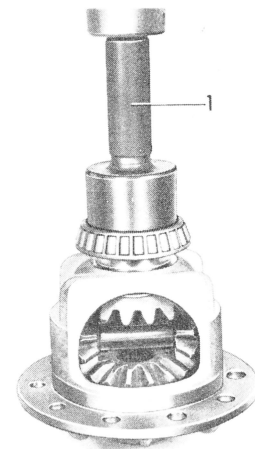


Fig. 8  
1 Assembly mandrel